Barleyhurst Park Primary School

Science Policy.

This policy is for Barleyhurst Park School and Barleyhurst Park Nursery.

Agreed by Governors: 15.06.2023

To be reviewed: Summer 2025

Aims and Objectives
Science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. It aims to stimulate a child's excitement and curiosity in finding out why things happen in the way they do. It teaches methods of enquiry and investigation to encourage creative and rational thought. Pupils learn to ask scientific questions and begin to appreciate the way in which science will affect their future on a personal, national and global level. By the end of each Key Stage, each child will have an understanding of a variety of scientific concepts that they can use to explain what is happening, make predictions as well as analyse results.

The National Curriculum
The National Curriculum for science aims to ensure that all pupils:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics;
- develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them;
- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future;
- develop the ability to reason, predict, think logically and work systematically and accurately;
- be equipped with the correct technological vocabulary in order to communicate scientifically, including when presenting their hypotheses and results;
- develop the ability to work both independently and collaboratively with their peers;
- develop the ability and understanding to use and apply science across the curriculum and in real life.

Working scientifically
'Working scientifically' specifies the understanding of the nature, processes and methods of science for each year group. It will not be taught as a separate strand. All ways of 'working scientifically' are clearly mapped out for progression and embedded within the content of biology, chemistry and physics, focusing on the key features of scientific enquiry. Pupils learn to use a variety of approaches to answer relevant scientific questions. Pupils will seek answers to questions through collecting, analysing and presenting data. 'Working scientifically' will be developed from EYFS, Key Stage 1 and throughout Key Stage 2 in order to prepare pupils for further challenge that will be presented at Key Stages 3 and 4 in science. The types of working scientifically we include: Observing over time; pattern seeking; identifying, classifying and grouping; research; comparative and fair testing.

Teaching and Learning style
At Barleyhurst Park we use a variety of teaching and learning styles in our science lessons. Our principal aim is to develop children's knowledge, skills and understanding. Sometimes we do this through whole-class teaching, while at other times we engage the children in an enquiry-based research activity. We encourage the children to ask, as well as answer, scientific questions. They have the opportunity to use a variety of data, such as statistics, graphs, pictures and photographs. Learning is enhanced through the use of computing skills in online learning, software application and practical use of hardware such as data loggers. There are opportunities for role-play and discussions, and the chance to present reports to the rest of the class. They engage in a wide variety of problem-solving activities. Wherever possible, we involve the pupils in real scientific activities, for example, investigating a local environmental problem, or carrying out a practical experiment and analysing the results.

We recognise that children have a wide range of scientific abilities and we ensure that we provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this in a variety of ways:

- setting tasks which are open-ended and can have a variety of responses;
- setting tasks of increasing difficulty (we do not expect all children to complete all tasks);
- grouping children by ability in the room, and setting different tasks for each ability group;
- providing resources of different complexity, matched to the ability of the child;
- sing classroom assistants to support the work of individual children or groups of children.

Science curriculum planning
The school follows the National Curriculum for science as the basis of its curriculum planning. Long term planning shows the scientific topic studied in each term, across the school. The medium-term plan outlines specific objectives to be taught across the Key Stages. Although science is taught as a discreet subject, efforts are made to make links to other curriculum subjects and every topic has suggestions for cross-curricular activities as well as ideas for working scientifically.

Foundation Stage
The foundation stage class follows the Early Years Foundation Stage Curriculum (EYFS). Learning opportunities are based on progressing through the Early Learning Goals, in particular Understanding of the World. The pupils have the opportunity to observe, comment and investigate changes in the world around them and are encouraged to question how things work and explain why things happen. This is through focused activities and the pupil's free choice, including the use of our outdoor spaces to allow them to observe changes as the year progresses.

Contribution of Science to teaching in other curriculum areas.
English

Science contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. Within Guided Reading sessions some of the texts that the pupils study are of a scientific nature. Pupils have the opportunity to develop their oral skills within science lessons through group discussions, presentations and the sharing of observations within scientific investigations. They develop their writing skills through writing reports, projects and by recording information, and teachers will occasionally set report writing from a science lesson as an assessed writing task.

Mathematics
Science contributes to the teaching of mathematics in a number of ways, including the use of weights, measures, estimation and prediction. Pupils develop the skills of accurate observations and recording of events. They use numbers in many of their answers and conclusions, interpreting data and representing it in charts and graphs.

Computing
Pupils use computing in science lessons where appropriate. They use it to support their work by learning how to find, select, and analyse information on the internet, use data loggers, cameras and iPads.

Personal, social and health education (PSHE)
Science makes a significant contribution to the teaching of personal, social and health education, which leads itself to raising matters of citizenship and social welfare.

Spiritual, moral, social and cultural development
Science teaching offers children many opportunities to examine some of the fundamental questions in life, for example, the evolution of living things and how the world was created. Through many of the amazing processes that affect living things, children develop a sense of awe and wonder regarding the nature of our world. Science also raises many social and moral questions and through the teaching of science, pupils have the opportunity to take part in discussions and observations related to key issues. Teachers give pupils the chance to reflect on the way people care for the planet, and how science can contribute to the way we manage our planet's resources. Science teaches children about the reasons why people are different and, by developing the children's

knowledge and understanding of physical and environmental factors, it promotes respect for other people.

Science and Inclusion
Pupils' needs are addressed through carefully planned learning opportunities using appropriate resources. For further details see separate policies: Special Educational Needs; Disability Non-Discrimination; English as an Additional Language (EAL).

Assessment for learning
Teachers will assess children's work in Science by making informal judgements during lessons based on observation, participation and writing outcomes. On completion of a piece of work, the teacher marks the work and comments, as necessary, in relation to the learning objective, as well as providing pupils advice on how to make further progress. Teachers will also use these informal judgements to inform future planning.

Teachers make summative assessments at the end of each unit through the use of end of unit tests. With the help of these assessments, they are able to set targets for the next school year, and to summarise the progress of each pupil before reporting to parents. The next teacher then uses these to move the pupil's learning forward.

Formative and summative assessment data is recorded on our school's data computer system for analysis by the school's science leader, meaning that progress and attainment are regularly monitored, and any gaps are identified so that support can be put into place. The Science Subject Leader is also then able to promote continuity and progression.

Resources
We have sufficient resources for all science teaching units in the school. We keep these in a central, easily accessible store, where there is equipment for each unit of work, and to which all members of staff have access. There is also a collection of science equipment which the children use to gather weather data. The library contains a good supply of science topic books and computer software to support children's individual research.

Monitoring and review
It is the responsibility of the Subject Leader to monitor the standards of children's work, the quality of teaching in science and progression across the subject throughout the year groups. The Subject Leader is also responsible for supporting colleagues in their teaching of science, for understanding the 'pupil voice' with regards to science lessons, being informed about current developments in the subject, and for providing a strategic lead and direction for science in the school. The Subject Leader gives the Headteacher a data report at the end of each term and an action plan each year to outline future developments.